The segment information practices of the biggest European companies

Philippe Touron, Stephane Bellanger

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Objective and Methodology

The sample includes 50 companies from the FT Europe 500, the 35 biggest firms and 15 firms ranked between 36th and 100th which were randomly chosen. Insurance companies and banks were excluded.

Several sources were used: consolidated financial statements certified by auditors, management reports, slides used during presentations of results and press releases when available.

The report analyses the choices made by management concerning indicators disclosed according to IFRS 8 and segment identification. It also compares the redundancy of disclosure across different media: press releases, slides used during presentations of results and management reports. Our objective is to explore the relevance and comparability of segment information.

Acknowledgements: the authors would like to thank Olivia Raad Graco de Lay and the members of the "SFAF Accounting Commission" for their help

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EXECUTIVE SUMMARY

IFRS 8 was implemented in 2009 in Europe. This report analyses the segment reporting practices of 50 Europeans firms from the Financial Times European companies ranking. IFRS 8 superseded IAS 14. IFRS 8 is based on a management approach. There are two main differences: first, segmentation implemented in the consolidated financial statements should be the same as that used in internal reporting. Second, IFRS 8 allows companies to use “Non-GAAP” operating income for performance measurement. Both changes may impact relevance and comparability.

The study analyses the composition of indicators of performance reporting by segment in the first section. The second section is devoted to the description of the criteria used in segment identification. In the third section, a two-dimensional classification of firms is produced. In the last section, we set up a harmonisation index to measure disclosure convergence across channels.

More than 2/3 of the companies disclose an operating measure of performance which is “Non-GAAP”.14 companies used Non-GAAP profit and loss instead of IFRS operating income to measure segment performance. This means that more than 1/3 of companies using non-GAAP do not provide reconciliation. This clearly shows a decrease in comparability because any reference to IFRS has disappeared at each segment level.

As a consequence of non-GAAP, there are numerous ways of computing segment earnings. And there is a need to explain calculation items excluded from the calculation of the indicators by reference to a normalised benchmark. There is huge diversity not only in indicators (exclusion or inclusion of expenses/income are not the same) but also in the numerous acronyms used. Thus, diversity in terminology constitutes in itself an obstacle to comparability between firms.

38 companies used segmentation based on a business reporting system, 6 segmentation based on a geographical reporting system and 6 adopted a mixed approach (this introduces a dynamic vision of business into segmentation which is by definition static). It thus reflects an increase in relevance. However, the implementation of IFRS 8 does not always allow the calculation of return on assets for both geographical and business breakdowns because 1) the asset amount is disclosed only by geographical area and not by business segment and 2) geographical breakdown may not be the same for turnover and for assets and investments.

The analysis demonstrates that the higher the fraction of ‘IFRS operating income’ excluded from the segment income called Total Management Approach Income (TMAI), the higher the probability reconciliation will not be provided. Even when the difference is small, the operating income segment allocated to segments may be much smaller than the total income segment. Five companies (10% of the sample) did not allocate more than 25% of TMAI. Understanding the unallocated portion of TMAI is essential for the relevance of the information given by Allocated Management Approach Income (AMAI) by segment.

The last section explored the contents of press releases, management discussion & analysis and slides of annual results used in investor presentations. The results reveal that more than 60% of companies disclose exactly the same segmentation and indicators whatever the media. However, segments may sometimes be aggregated or focus more on customers than the

segments used in reporting. In all these media, Non-GAAP measures are provided even more than in consolidated statements.

The study’s main recommendations are:

1. The use of Non-GAAP indicators does not prevent disclosure of IFRS operating income by segment. It is thus necessary to reconcile Non-GAAP with IFRS operating income by segment and not just on an overall basis.
2. Company managers must disclose more qualitative and quantitative information on changes in segment identification but also on segment breakdown to avoid temporal discontinuity in performance analysis.
3. Information disclosed to investors should focus on the same indicators and segments as those used in consolidated financial statements.

Content

Relevance and comparability are dependent on segment identification and segment performance. Relevance means that the information is useful to evaluate the performance of the firm. Comparability has two different aspects: the first regards one firm across time and the second refers to the comparison between firms.

Relevance supposes that the information given by segment is meaningful. In this report, information is relevant if the identification of segments is understandable by users of financial statements and the allocation of income is made in a simple manner and convergent with the management approach. Thus, practically, relevance also implies that information disclosed is the same for all communication channels. Indeed in our analysis we are investigating relevance by comparing the identification of segments and performance measures used in the financial consolidated statement with those disclosed in press releases and Management discussion and analysis (MD&A hereafter) which are considered as useful to users. Also, we identify companies that used non-GAAP measure in the segment information section of their consolidated financial statements.

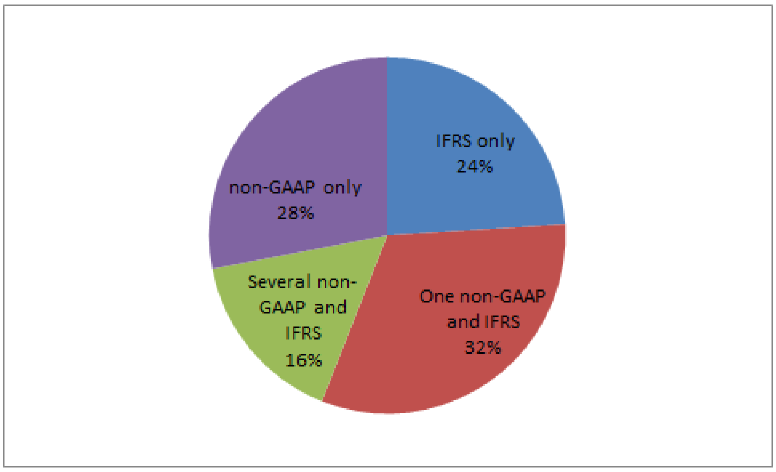
In order to access comparability, we investigate if companies used directly IFRS operating income as disclosed in the consolidated financial income statement (hereafter, IFRS operating income) or produced at least reconciliation. We also analyse the information disclosed in case of change in the breakdown and composition of segments.

The comparison between firms is possible only when the content of indicators is harmonized. It requires the use of the same rules in calculating the 'performance indicator'. Thus, we investigate the degree of compliance with IFRS.

1. Indicators' use in the consolidated financial statements.

First, we analyse the indicators used by companies. Second, we describe the semantic of the indicators.

1.1. Description of indicators used by the firms



In the consolidated financial statements published in 2012 (closing year 2011), the indicators are disclosed by firm according to several modalities. On a total of 50 firms:

- 12 firms used IFRS operating income,
- 16 firms referred to a non-GAAP measure for performance evaluation and IFRS operating income,
- 8 firms used several non-GAAP measures for performance and provided reconciliation with IFRS for each segment,
- 14 firms referred to a non-GAAP measure only and do not provide the reconciliation with IFRS by segment.

The appendix 2 gives a list of companies and indicates for each company whether it used IFRS operating income, only non-GAAP indicators or both (non-GAAP and IFRS) as a measure of performance,

At first analysis, 48 % of firms of the total sample provide reconciliation between the non-GAAP indicators which are used and the IFRS earnings by segments. 24% of the total sample (12 companies) published an IFRS operating income by segment companies and do not used non-GAAP measure. Among the 38 companies which used non-GAAP measure, **14 (37%) do not provide reconciliation.** This finding could be seen as an increase in relevance (more non-GAAP information than under the previous standards (IAS 14 required IFRS measure for segment performance). **The increase of relevance is detrimental to comparability.**

Only 72 % of firms are able to provide the information in the IFRS format by segment. **Thus, for 28 % of the sample, the implementation of IFRS 8 decreased the comparability because any reference to IFRS disappeared at the level of each segments.**

1.2. The semantic of the indicators.

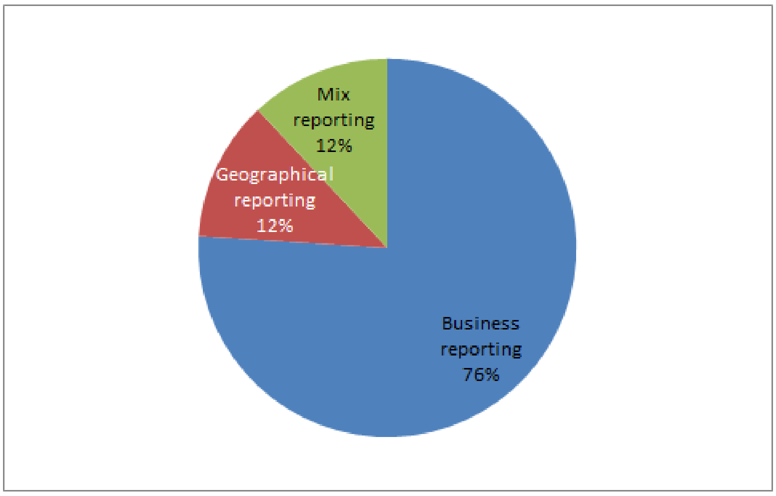
The appendix 1 gives the list of all the names of the indicators used by firms to measure the performances of reportable segments in the notes of consolidated financial statements. There is a huge diversity not only of names given to the reported income by segment, but also numerous acronyms are used. In addition, the same name can correspond to different realities. More precisely, the expenses and revenues excluded from the computation are often idiosyncratic to each company. Distinct items (impairments, fair value hedge or pensions) are excluded from reported income by segment. Even if firms provided a global reconciliation, it did not allow any reallocation of cost to particular segments**. Thus, there is a need for explanation of the calculation of the items excluded from the calculation of the indicators by reference to a normalized benchmark.**

EBITDA is used by three firms as a primary indicator and by fours firms as a secondary indicator. EDF used an 'Operating Profit Before Depreciation and Amortization'. Telefonica used an OBIDA as primary indicator. SAB Miller used EBITA. Concerning the EBIT, there are EBIT, normalized EBIT, and underlying EBIT. Shell and BP calculated their indicator using the practices of the petroleum sector, i.e. on a current cost basis. The diversity is even greater with the so-called operating income, operating profit, segment profit. The naming used for "operating income" are numerous: adjusted operating income, adjusted operating profit, underlying operating profit/core operating profit' business operating income, current operating income, operating result segment, business operating profit. The example of BASF is in itself significant: there is an EBIT compliant with IFRS, an EBIT before special items and an EBITDA. **Thus, the diversity in the terminology constitutes in itself an obstacle to comparability between firms.**

2. Identification of segmentation use by companies in the consolidated financial statements

First, we identify the criteria used for identification of segments. Second, we list the number of segments.

2.1. Criteria used to identify the segments



We have three groups (two of equal importance).

- 38 firms use a segmentation based on a business reporting system
- 6 have a segmentation based on a geographical reporting system
- 6 have a mixed approach.

Concerning the segmentation, we report as 'segment' the level which corresponds to the 'reported segment'. However, the biggest firms also used the concept of divisions. For

example, Telefonica reported geographical segments but it provided information by switching fixed and mobile businesses. GSK switched segment profit by divisions. Unilever used geographical segments but gave information by ‘products area’ instead of geographic.
Deutsche Post used a business approach and defines a segment ‘on the basis of the existence of segment managers with bottom-line responsibility who report directly to Deutsche Post DHL’s top management’ and used the term of ‘responsible segment management bodies’ to qualify CODM.

The mixed approach introduces a dynamic vision of business into a segmentation which is by definition static. Hence, it characterizes an increase in relevance. Tesco adopted a mixed segmentation only because of a segment for the bank activities, however all the others segments are geographical. Deutsche Telecom has geographical sectors and a segment for Systems. Nestlé mixed five geographical segments with two businesses (Nutrition and Waters) and ‘other’. All the firms which had chosen the mixed segmentation have more than five segments. The case of Iberdrola is very confusing. Iberdrola used a mixed approach because it is in a period of transition, moving from geographical approach to a business approach (Appendix 5). However, the companies should be obliged to quantify the impacts not only of the change in segmentation but also of the transfers of activities from one segment to another.

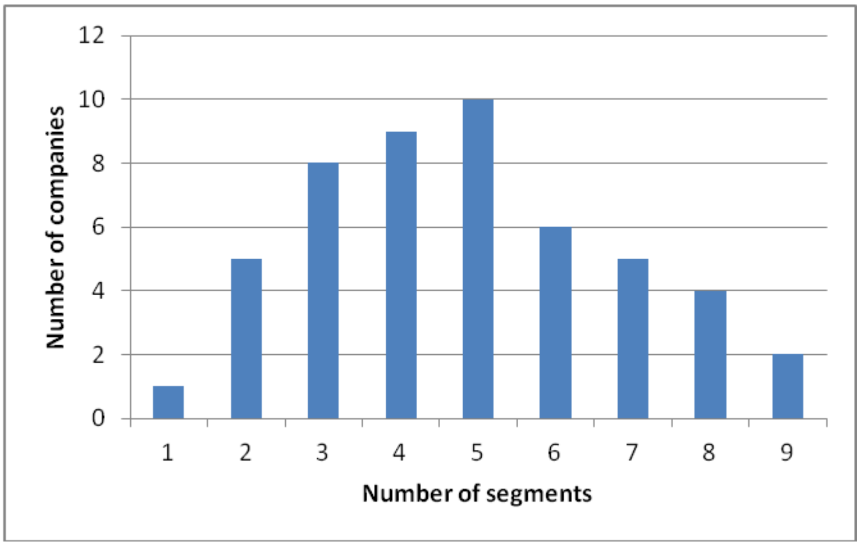
A focus on geography

The geographic segmentation corresponds to firms whose activities are ‘Business to Consumers’ (with the exception of Unilever).

Among the 50 firms, 8 did not provide geographical items as required by paragraph 33 of IFRS8. Logically, Vodafone, Telefonica, AB Inbev, Unilever, H&M already managed operations on a geographical basis. Tesco, and Fortum are in the ‘Mix Group’ and only Gazprom has a business approach. Unilever gave additional information by products area and manages operations on a geographical basis. The number of geographical area may be huge Anglo American broke up information in 13 areas, Rio Tinto - in 11 and Nestlé - in 10.

IFRS 8 requires that each reported line item is measured in accordance with how that amount is reported to the CODM for the purposes of making decisions about allocating resources to the segment and assessing its Performance. It may be difficult to calculate a return on capital employed (or least a return on asset). Very often the geographical decomposition is not the same for the turnover and for assets and investments. Indeed, the localization of customers may differ from the localization of investments. Fortum for example disclosed external sales by products area, sales by market area based on customers’ location and segment assets and capital expenditure by location. Syngenta gave information based on IFRS for every operating segments but the information concerning assets is given only for the geographical line. There is no assets information for the operating segments. **The IFRS 8 did not allow the calculation of return on assets for both decompositions.**

Graph 1: distribution of firms by number of segments



This graph illustrates the distribution of the firms of our sample. It is not too far from a normal distribution. 6 firms have more than seven segments and 6 firms have less than 3 segments.

The maximum number of segment is 9 (BHP Billiton and Anglo-American) and the minimum is 1 (AstraZeneca). On the one hand, AstraZeneca published information for only one segment because '*Our pharmaceuticals business consists of the discovery and development of new products, which are then manufactured, marketed and sold. All of these functional activities take place (and are managed) globally on a highly integrated basis. We do not manage these individual functional areas separately*.' (Page 154 of the annual report). On the other hand, the geographical information is richer than the average company in the sample. Lots of items are provided (operating income, investments among other things). The median is 5 (the mean is 4.84).

If the criterion is geography, then there are 3 firms with 3 segments: Deutsche Telecom, Iberdrola and Tesco, and there are 3 firms with more than 6: AB Inbev [7], SAB Miller [7], Vodafone [8]. If the criterion is mixed, the number of segments is at least 5.

2.2. A sectorial view of segmentation

The table below analyses the statistics by type of segmentation and also by *sectors*

Table 1: statistics of the criteria used in the identification of segments by industries

	Mean	Median	Max	Min	Variance
Geo	5,17	5,00	8	3	5,77
Mix	6,17	5,50	8	5	2,17
Business	4,58	4,00	9	1	3,82
All	4,84	5,00	9	1	3,97
Oil and gas producers [8]	4,50	4,00	8	2	4,29
Pharmaceuticals [6]	2,83	2,50	5	1	2,17
Mining [4]	7,50	7,50	9	6	3,00
Electricity [3]	5,33	5,00	6	5	0,33
Telecom [3]	5,33	5,00	8	3	6,33
Chemicals [3]	4,67	5,00	6	3	2,33
Automobiles [3]	4,33	4,00	5	4	0,33
Other [20]	5,29	5,00	8,00	2,00	3,60

The 'other' is an aggregation of the sectors with less than 3 firms in the sample. (Beverages; Gas, water and utilities; General Industrials; Food producer; Industrial transportation; Personal goods; General retailers; Tobacco ; Industrial Engineering; Food & Drugs retailers; Software and Computer Services; Industrial metals & Mining).

All the pharmaceutical firms identified less than 5 segments (GSK = 2, Roche = 3, Sanofi-Aventis= 4 and Novartis=5). On the other side, Mining and Utilities identified more than 5 segments.

If we look at the Telecom sector, there is no harmonization of practice at all. Telefonica used a geographical base. Deutsche Telecom used mixed geographical segments with a kind of business segment 'System Solutions'. It is impossible to ungroup 'fixed' business and mobile business. For Telefonica, the name changed but it is an indicator from the EBITDA family.

2.3. Changes in segmentation

Information concerning changes in segmentation is given for: Novartis, Nestlé, Vodafone, BP, Siemens, Telefonica, GSK, Sanofi, GDF Suez, Statoil Hydro, British American Tobacco, Volkswagen, Bayer, Anglo American, E.on, Iberdrola, Tesco and H&M (see appendix 6).

Volkswagen created a new segment 'new power'. E.on adopted a new structure in 2011. British American Tobacco explained a reduction from five to four segments. Total explained that it will change segmentation in 2012. BASF documented intra-segments changes.

The link between cash generating units and segment were not provided in the note specific to segments information. However, it is possible, sometimes to find the information. AB INBEV explains that CGU for goodwill impairments are business units that are one level below the segments. BG Group explains clearly where the goodwill recognized is affected and how the CGU are linked to segments.

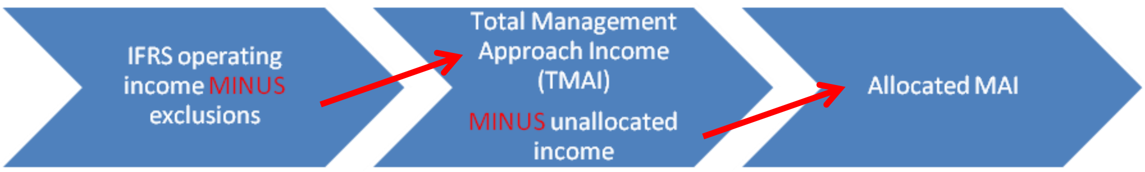
3. Elaboration of a classification of firms.

Managers use Non-GAAP indicators of performance, called **Management Approach Income** hereafter. Thus, they restate the operating income calculated under IFRS to obtain a 'Total Management Approach Income' (TMAI). Then, they allocate TMAI to segment. There may be an amount of TMAI that is not allocated to meaningful segments. It is the unallocated part of the reported segment income.

3.1. The methodology

We set up a proxy to capture the difference between the operating income under IFRS and the allocated segment income, called allocated management approach income (AMAI). Two indexes were computed. Firstly, the **Exclusion index** shows the fraction of IFRS operating income EXCLUDED from the calculation of segments' Total Management Approach Income (TMAI hereafter). The details of the computation are described under the diagram 1. A negative index (TMAI > IFRS operating income) underlines for a firm that the Management Approach excludes costs and includes revenues that are respectively included and excluded in IFRS operating income. A positive index (TMAI < IFRS operating income) indicates that the TMAI is more conservative than IFRS operating income as disclose in consolidated income statement.
Secondly, we compute the **Un-allocation index** which shows the part of the TMAI that is not allocated to a clearly identified segment (i.e. the part allocated either to 'Corporate' or 'Other'). This second index is used in the segment section.

Diagram 1: The process of calculation of AMAI



<u>*Illustration:*</u>
The IFRS operating income is equal to 100. The first index gives a measure of the part of IFRS earnings excluded from TMAI. The second index gives a measure of the 'unallocated part' of TMAI. The Non-GAAP earnings used by the firm are 120 and the sum of the individual segments earnings is 109. Then the exclusion index = 1-(120/100) = -0.2 and the unallocated index = (120 – 109)/109 =0.1
If the sign of the exclusion index is negative (IFRS is smaller than TMAI), it means that costs are not included in the segment calculation. The income used for performance is less conservative than the IFRS operating income. The absolute value of the index is an indicator

of the deviation. For un-allocation index, the index expresses the percentage of income TMAI not allocated to a meaningful segment.

The table 2 indicates that for all the companies of the sample:

- *17,2 % of the costs (of all the companies of the sample) included in IFRS operating income are excluded from the measure of performance (non-GAAP indicators)*
- *7 % of non-GAAP operating income are not allocated to segment*

These percentages hide disparities between firms.

Table 2: definition of Excluders and Un-allocators

	Exclusion Index		Un-allocation Index	
	Value	ABS(value)	Value	ABS (value)
Median	-0,1834	0,0355	-0,019	0,029
Mean	-0,1722	0,2113	-0,011	0,072
Variance				
Variation > 25 %	10 Big Excluders		4 Big unallocators	
10 % < Variation < 25 %	7 Excluders		8 Unallocators	
10 % < Variation	33 others		38 others	

These indexes have been used to sort the firms. They discriminate firms that had huge amounts of either exclusion or unallocated amount of TMAI from others. Two thresholds have been used: variations of more of 25 % and variations between 10 % and 25 % (see table above).
The mean of the index of exclusion is -0.17 for all the firms, including those which have a segment income above IFRS operating income. Thus, for the sample, 17 % of the costs are excluded from the TMAI. However, the index applied to the absolute value is an indicator of deviation from IFRS operating income. The average deviation is 21 %.
The mean of index 2 is around 1% because of the signs. The difference may be positive when you have eliminations, or negative if there is a fraction which is clearly non-allocated. However, if we compute the index with absolute value, we obtain 7%. It is less than the first index. However, the allocation of TMAI to segment may distort the analysis. This effect is discussed below in Analysis of unallocated portion.

Our main findings are:

- 17 companies are ‘Excluders’ and 12 firms are ‘Unallocators’ (Appendix 2).
- Only five companies (Shell, British American Tobacco, SAP, AP Möller Maersk, and Thyssen Krupp) breach the limits for both indexes.
- 2 companies are big unallocaters and big excluders.

Then a classification was obtained: 17 firms are ‘Excluders’ and 12 firms are ‘Unallocators’ (Appendix 2). Only five companies (Shell, British American Tobacco, SAP, AP Möller Maersk, and Thyssen Krupp) breach the limits for both indexes. Three of them (Shell, SAP and Thyssen Krupp) do not provide a reconciliation. 10 % of the sample is composed of **Unallocators** and 20 % are **Excluders** but only two firms (AP Möller Maersk, Thyssen Krupp) are big unallocaters and big excluders. **Thus, the definition of the TMAI allows excluding costs (and revenues) from the analysis and then the identification of reported segment allows managing the part of TMAI not allocated to segment.**

3.2. Analysis of the Exclusion Index

The exclusion index permits to analyse the excluded portion of operating IFRS income from TMAI.

Ten firms have an **Exclusion index** above 0.25. It means that for these firms more than 25 % of the costs included in the operating income are not included in the calculation of the income used for performance measurement. The absolute value of the first index is large for 34 % of the sample. 10 companies have a deviation of more than 25% (Among them 8 have more than 25% of costs not allocated to segments) and 7 have a deviation between 10 and 25 % (Among them 6 have more than 10 % of cost not allocated to segment).

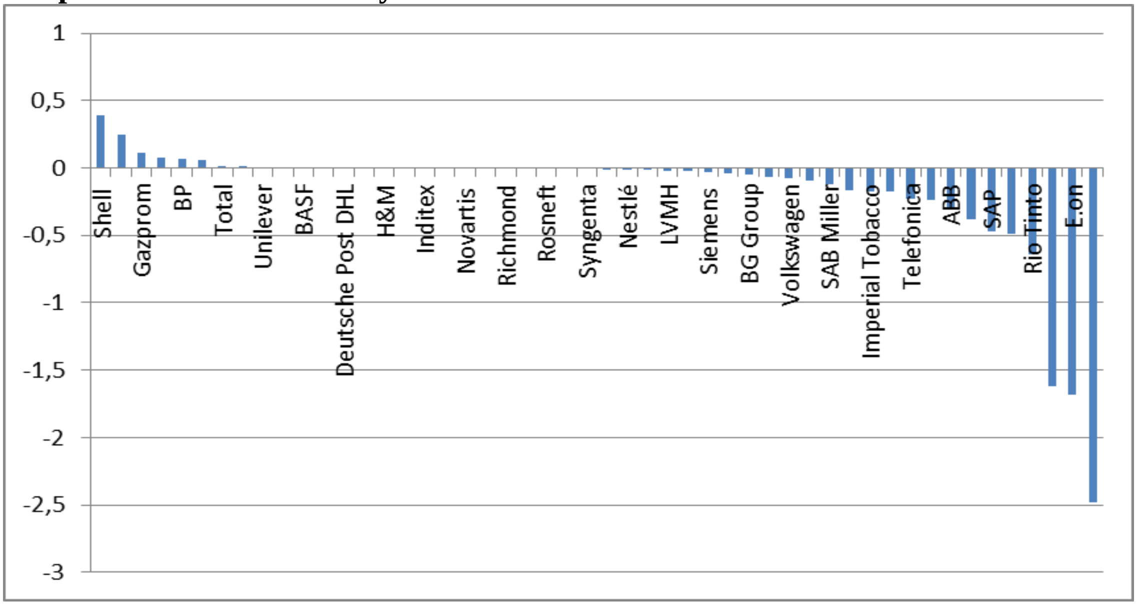
Do the excluders provide information regarding the items not included in the calculation of the TMAI? It is interesting to illustrate it with some examples. E.on, ABB, AP Moller and VODAFONE have indexes of respectively, -1.69, -0.29, - 0.49 and -1.62 (it means that respectively, 169, 29, 49 and 162 percent of the costs included in IFRS operating income are excluded from non-GAAP income). They used an EBITDA. SAP (-47%), Sanofi-Aventis (-38), Rio Tinto (-0.64) excluded restructuring cost, acquisition cost and impairments. Fortum is an exception with Shell, the indexes are higher than 25 % but positive. Fortum used a comparable operating profit (M€ 1802 in 2011) that is smaller than the IFRS operating profit and gave reconciliation with IFRS operating profit of M€ 2402. The differences are positive non-recurring incomes and expenses, positive changes in fair value of derivatives and a negative nuclear fund adjustment. This example is a proof that the reconciliation by segment is feasible. Every adjustment is allocated to sectors (see page 62 of annual report Fortum 2011). Shell uses earnings on a current cost of supplies basis. Thus, Shell is the only company of our sample which does not provide an operating income in the consolidated financial statements.

The next step is to ask: do these firms (‘Excluders’) did provide reconciliation with the same frequency to that of others?

53 % of the excluders (9 firms over -17) do not provide reconciliation with IFRS by segment. This means that for almost 2/3 (9 firms over 14) of the companies not providing reconciliation with IFRS, the income defined with the Management approach deviates from more than 10 % of the IFRS operating income. As a comparison, we see that a little bit less than14 % of the companies (only 5 companies of the 36 remaining companies), which had reconciled non-GAAP with IFRS, are outside of reasonable limits. **Thus, the higher is the fraction of ‘IFRS operating income’ excluded from TMAI, the higher the probability of not providing reconciliation.**

The graph 2 points out the level of the index (on the ordinate) by companies (on the abscissa).

Graph 2: Exclusion index by firms



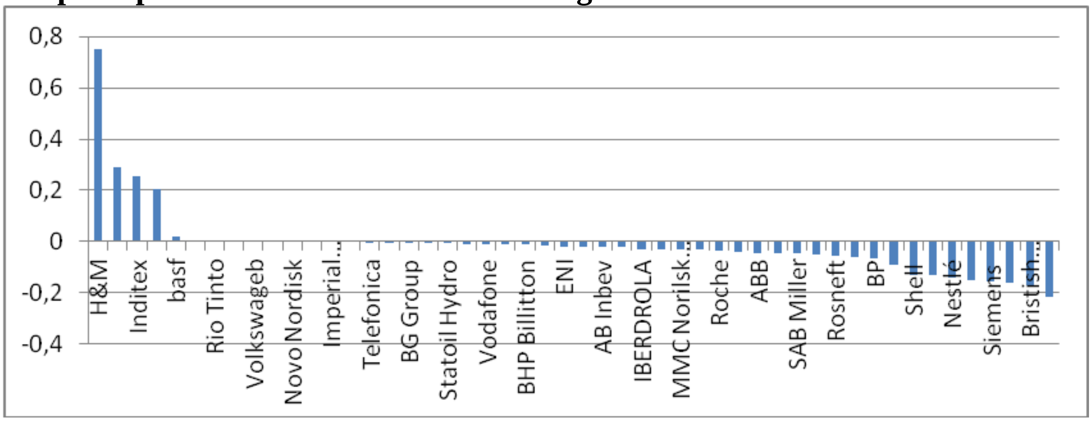
BP gave the IFRS Operating Income by segment. GSK reconciled with IFRS operating profit not exactly for each segments. The restructuring costs are excluded in the segments. BHP Billiton uses an 'underlying' EBIT that is an IFRS operating income adjusted. There is no finance costs, neither exceptional items. The reconciliation is not made by segment. Unilever used the operating profit (in compliance with IFRS) but gave an operating profit before RDIs. (RDI ='**R**estructuring costs, profits and losses on Business disposals, **I**mpairments and other one-off items'(see page 10 press release). Imperial Tobacco used adjusted operating profit. Thyssen Krupp used an EBIT and explained that '*Factors that can only be optimized and assessed at Group level – in particular non-operating financial income/expense and income taxes – are disregarded in assessing operating units'. As of October 01, 2010 ThyssenKrupp switched its key earnings performance indicator from EBT to EBIT. Contrary to the previous EBT the new indicator EBIT cannot be taken directly from the consolidated statement of income prepared in accordance with the IFRS rules*.' (Annual Report, page 187). E.on used EBITDA and did not provide reconciliation by segments. Xstrata used EBITDA in the segment information section (and provided an EBITDA for the group in the consolidated income statement). Rio Tinto had 'judgmental category' which included, where applicable, other credits and charges that, individually, or in aggregate if of a similar type, are of a nature or size to require exclusion in order to provide additional insight into underlying business performance' 'Consolidated financial Statements' (page 154, Annual Report, Rio Tinto, 2011). Bayer used several non-GAAP indicators (EBIT before special items, EBITDA, CFROI, Grow…) but gave an EBIT which is defined as ''operating result as shown in the income statement' (page 2, consolidated financial statements, 2011). Furthermore, all the indicators are defined and explained with all the restatements done. Anglo-American used an "operating income" in the segment information but disclosed also an indicator 'underlying earnings'. AB INBEV used a 'normalized EBIT' and also a 'normalized EBITDA' but provided reconciliations with IFRS for each geographical segment for both indicators. **The use of Non-GAAP indicators does not prevent the disclosure of an IFRS operating income by segment.**

3.3. Analysis of the unallocated portion of TMAI – Unallocation Index

There is a group of companies (Tesco, Siemens, ENI, Daimler, Volkswagen, and BMW) that have a particular segment for financial activities. Consequently, the calculation of non-allocated is not easy. **Non-homogeneity of indicators between segments distort analyse and allocation.** For example, BMW uses a profit before tax for the Financial Services segments and a profit before financial results for the other segments. Thus, the total of the result is calculated with heterogeneous measures rendering the information meaningless.

When the Unallocation index is negative, it corresponds to the fact that costs are not allocated (-costs/TMAI). When it is positive it means that a positive income has been allocated to the corporate segment, or the 'other' segment.
Twelve firms out of 50 did not allocate more than 10 % of the TMAI. Among these, **five did not allocate more than 25 %.** This last finding suggests that companies may use IFRS and also provide information but at the same time, they still disclose meaningless information (such as H&M which did not allocate 75 % of operating profit (computed under IFRS) to operating segments but instead to 'Corporate'). Four companies have an unallocated TMAI higher than 25 %. They all provided reconciliation (see Deutsche Telecom, INDITEX, H&M and AP Moller Maersk). "Question /Thyssen Krupp Seven companies have an unallocated TMAI between 10 and 25 %. Four of these companies did not provide reconciliation. **The understanding of the unallocated part of TMAI is essential for the relevance of the information given by AMAI by segment.**
The graph 3 points out the level of the Unallocation index (on the ordinate) by companies (on the abscissa).

Graph 3: part of TMAI not allocated to segments



H&M disclosed an operating profit by segment but 75 % of the total operating profit is allocated to the 'Group Functions' segment. This means that operational segments that are geographical segments are almost cost centres. Practically, it is impossible to link costs and revenues by sector. For Deutsche Telecom, the corporate segment changed a lot every year; EBIT is positive in 2011 but was negative in 2010.

4. Comparison between segments and divisions in consolidated financial statements and measured/items disclosed beside the consolidated financial statements.

Financial analysts need to cross-check information published and disclosed. There may be two sources of divergence: the number and type of segment and the measure of operational performance. Sometimes, there are divergences concerning the aggregation of segments.

4.1. Redundancy across channels

So, we analysed three sources of information to identify the elements disclosed besides the audited consolidated financial statements: the press release, the slides used during the presentation of results and also the 'financial review' (MD&A). Our aim was to evaluate the comparability of information across the different communication networks. We triangulate the information. Indicators different than the AMAI used in consolidated financial statements are presented in appendix 1.

The table 3 contains the number of companies that respectively, had a similar segmentation, used the same indicator (AMAI) and published the same number for sales than in the consolidated financial statements.

Table 3: Redundancy across communication channels

	Segments	AMAI	Sales
Press releases	32	30	
Slides	32	29	30
Management Reports	35	34	

32 firms (64 %) used the same segmentation in the consolidated financial statement and in the other communication supports. but only 58 % used the same AMAI in the presentation to investors. The percentages are a slightly higher in the Management Report. This is logical. Also, the company can give the information in the slides or in the release but do not focus on it in the presentation. We did not explore this last possibility. We consider that there is homogeneity as soon as the information was given. It may explain the high level of conformity.

4.2. Analysis of divergences across channels - Harmonization Index

Is the segmentation used in the corporate communication process in line with the reportable segments?

A **harmonization index** had been calculated for every firm (Appendix 5). If segmentation (respectively the indicator used) is the same across all the communication channels, then the value of the harmonization index is **one**. If there is one divergence or if the information is missing in one support, the index decreases. An harmonization index of **zero** means that the segment information disclosed in the consolidated financial statements according to IFRS 8 is not present in the communication process or that this process does not exist. The worst firms are still H&M and Inditex. The Russian companies' scores are also zero because of the lack of rules concerning disclosure of information in Russia.

Having analysed our sample we have identified five groups of harmonization. The companies diversify into these groups as follows: (We have five groups.)

- 12 firms have a perfect redundancy (harmonization index is one, green colour in the appendix).
- 4 firms have a high level of redundancy (harmonization index between 0.87, and 1,dark blue in the appendix)
- 23 firms have a medium level of redundancy (harmonization index of 0.67, sky blue in the appendix).
- 10 have a small or very small level of redundancy (harmonization index under the median (0.67 but higher than zero, orange in the appendix).
- 5 have no redundancy (harmonization index is zero, red in the appendix).

Segments divergences.

The sectors can be aggregated. Volkswagen changed sectors but used the same indicators. For Iberdrola, Brazil is presented as an independent segment in the consolidated financial statements and is added to a business segment called network under the label regulated in the presentation. The presentations and the Management Report used less segments and aggregate segments that have been switched in the consolidated financial statements. Bayer presentation is confusing. A division may aggregate two segments. However, while comparing the segment information and the press release, one can find an aggregation of two segments, Pharmaceuticals and Consumers Health under the headline Healthcare. According to the information given in the consolidated financial statement, healthcare is called a 'Subgroup'.
Mismatch with slides is possible. Volkwagen used an aggregation of the segments presented in the Management Report: Automotive and Finance and called divisions. The company referred to 'automotive division' in the presentation. Segment operating profits are, however presented on specific lines for Passenger cars and light commercial Vehicles and Trucks and buses but Power Engineering is included in Trucks.

Indicators divergences.

Presentation focuses more on customers and strategy. INBEV disclosed information regarding segment in the press release (in appendix) but not in the presentation that focused on Brands. Unilever had a similar approach: indicators by segment in press release but not in the presentation that focused on geography.

The Non-GAAP indicators are more developed than in the consolidated statement. For example, Statoil used an 'Adjusted earning' in press release and in slides but used IFRS operating income in consolidated financial statements. If we take Iberdrola (Spain), there is a link between segment and presentation. However, the presentation insisted on EBITDA and Gross Margin that are not used in the consolidated financial statements (audited information). For Roche, the performance operating income used in the consolidated financial statements is IFRS compliant but the disclosures based on other media have used the '**core operating result**'. Even if there is reconciliation by segments in the Financial Review, this one is not audited. For EDF, there is no reconciliation between EBITDA and the ‘current operating income’ in the notes audited but the slides during the presentation of the result provided reconciliation by segments. However, the reconciliation between the current operating income that is a non-GAAP measure and the IFRS operating income is not by segment, i.e. global. In the Management Report, Bayer used EBIT and EBITDA before special items. Bayer has a segment overview on the website that is in line with the content of the consolidated annual report. Deutsche Telecom used the numbers for EBIT and EBITDA in the press release, but referred to only EBITDA in the presentation.

Bibliography:

Post-implementation Review: IFRS 8 Operating Segments

Appendix 1: The names of the indicators used

		Consolidated statements	Investors disclosure	
		Primary measure	Primary measure	Other measures
1	Shell	ECCSB		
2	Nestlé	Trading operating profit		
3	Gazprom	Segment result	*No information*	
4	Vodafone	EBITDA		Core operating income
5	Novartis	Operating income		
6	Total	Adjust operating income		
7	BP	RCP		
8	Roche	Operating profit	Core operating Income	
9	Siemens	Adjust EBIT		
10	Telefonica	OIBDA		
11	Rio Tinto	Underlying earning		
12	GSK	Segment profit		
13	ENI	Adjusted operating profit		
14	Rosneft	Operating income		
15	Sanofi-aventis	Business Operating Income		
16	GDF Suez	Current operating Income		
17	AB Inbev	Normalized EBIT		
18	Statoil Hydro	Net operating Income	Adjusted earning	
19	Unilever	Operating profit		Underlying and COP
20	BHP Billitton	Underlying EBIT		
21	BG Group	Business operating profit		
22	Bristish American Tol	AdjSegRegConsR		
23	BASF	Income from operations (EBIT)		EBITDA, EBIT before spe
24	LVMH	Profit from reccurring		
25	EDF	Operating Profit Before Depreciation and Amortization		
26	Daimler	EBIT		
27	SAP	Segment result		
28	Volkswagen	Segment result		
29	Xstrata	EBIT		
30	Anglo-American	Operating Profit before special item		
31	Deutsche Telekom	EBIT	Adjusted EBITDA	
32	Bayer	EBIT		
33	Aztrazeneca	Operating Profit	Core operating profit	
34	Novo Nordisk	Operating Profit		Cash-flow
35	E.on	EBITDA		EBIT
36	SAB Miller	EBITA		EBITDA
37	ABB	EBITDA		
38	BMW	EBIT		
39	Iberdrola	Operating Profit	EBITDA	Gross Margin
40	Inditex	EBIT		
41	MMC Norilsk Nickel	Operating profit		
42	Tesco	Trading Profit		
43	H&M	Operating profit IFRS		
44	AP Moller Maersk	Profit before amortization. Impairement…		
45	Imperial Tobacco	Adjusted operating profit		
46	Syngenta	Operating income		EBITA
47	Richmond	Operating result segment		
48	Fortum	Comparable operating Profit		
49	Deutsche Post DHL	EBIT		
50	Thyssen Krupp	EBIT		Adjusted EBIT

Appendix 2: Indexes I_1 and I_2 and the indicators

		I^1	I^2	IFRS	Non-GAAP
1	Shell	0,440	-0,132		Non-GAAP
2	Nestlé	-0,005	-0,142		Non-GAAP
3	Gazprom	0,113	-0,011		Non-GAAP
4	Vodafone	-1,622	-0,010		Non-GAAP
5	Novartis	0,000	-0,061	IFRS	Non-GAAP
6	Total	0,016	-0,021	IFRS	Non-GAAP
7	BP	0,066	-0,067	IFRS	Non-GAAP
8	Roche	0,000	-0,034	IFRS	
9	Siemens	-0,032	-0,156		Non-GAAP
10	Telefonica	-0,227	0,000	IFRS	Non-GAAP
11	Rio Tinto	-0,642	0,000		Non-GAAP
12	GSK	-0,097	-0,086		Non-GAAP
13	ENI	-0,039	-0,018	IFRS	Non-GAAP
14	Rosneft	0,000	-0,055	IFRS	
15	Sanofi-aventis	-0,381	-0,003	IFRS	Non-GAAP
16	GDF Suez	0,073	-0,020	IFRS	Non-GAAP
17	AB Inbev	-0,023	-0,021	IFRS	Non-GAAP
18	Statoil Hydro	0,000	-0,004	IFRS	
19	Unilever	0,003	0,000	IFRS	Non-GAAP
20	BHP Billitton	-0,005	-0,013	IFRS	Non-GAAP
21	BG Group	-0,051	-0,002	IFRS	Non-GAAP
22	Bristish American Tol	-0,162	-0,169	IFRS	Non-GAAP
23	BASF	0,000	0,021	IFRS	Non-GAAP
24	LVMH	-0,021	-0,029	IFRS	Non-GAAP
25	EDF	0,000	-0,132	IFRS	Non-GAAP
26	Daimler	-0,071	-0,033		Non-GAAP
27	SAP	-0,470	-0,153		Non-GAAP
28	Volkswagen	-0,075	0,000	IFRS	Non-GAAP
29	Xstrata	0,012	-0,009	IFRS	Non-GAAP
30	Anglo-American	-0,175	0,001		Non-GAAP
31	Deutsche Telekom	-0,008	0,206	IFRS	
32	Bayer	0,000	-0,051	IFRS	Non-GAAP
33	Aztrazeneca	0,000	0,000	IFRS	
34	Novo Nordisk	0,000	0,000	IFRS	
35	E.on	-1,686	-0,045		Non-GAAP
36	SAB Miller	-0,124	-0,046	IFRS	Non-GAAP
37	ABB	-0,289	-0,044	IFRS	Non-GAAP
38	BMW	-0,239	0,000		Non-GAAP
39	Iberdrola	0,000	-0,029	IFRS	
40	Inditex	0,000	0,253	IFRS	
41	MMC Norilsk Nickel	0,000	-0,030	IFRS	
42	Tesco	0,056	0,000		Non-GAAP
43	H&M	0,000	0,750	IFRS	
44	AP Moller Maersk	-0,492	0,288	IFRS	Non-GAAP
45	Imperial Tobacco	-0,175	0,000	IFRS	Non-GAAP
46	Syngenta	0,000	0,000	IFRS	Non-GAAP
47	Richmond	0,000	-0,016	IFRS	
48	Fortum	0,250	-0,041	IFRS	Non-GAAP
49	Deutsche Post DHL	0,000	-0,160	IFRS	
50	Thyssen Krupp	-2,479	-0,216		Non-GAAP

Appendix 3: Classification of firms

		Reconciliation	I_1	I_2
1	Thyssen Krupp	No reconcilator	Big Excluder	Big Unallocator
2	AP Moller Maersk		Big Excluder	Big Unallocator
1	Shell	No reconcilator	Big Excluder	Unallocator
2	SAP	No reconcilator	Big Excluder	Unallocator
3	Vodafone	No reconcilator	Big Excluder	
4	Rio Tinto	No reconcilator	Big Excluder	
5	Sanofi-aventis		Big Excluder	
6	E.on	No reconcilator	Big Excluder	
7	ABB		Big Excluder	
8	Fortum		Big Excluder	
9	Bristish American Tabacco		Excluder	Unallocator
10	Gazprom	No reconcilator	Excluder	
11	Telefonica		Excluder	
12	Anglo-American	No reconcilator	Excluder	
13	SAB Miller		Excluder	
14	BMW	No reconcilator	Excluder	
15	Imperial Tabacco		Excluder	
16	Deutsche Telekom			Big Unallocator
17	Inditex			Big Unallocator
18	H&M			Big Unallocator
19	Deutsche Post DHL			Unallocator
20	Nestlé	No reconcilator		Unallocator
21	Siemens	No reconcilator		Unallocator
22	EDF			Unallocator
23	Novartis			
24	Total			
25	BP			
26	Roche			
27	GSK	No reconcilator		
28	ENI			
29	Rosneft			
30	GDF Suez			
31	AB Inbev			
32	Statoil Hydro			
33	Unilever			
34	BHP Billitton			
35	BG Group			
36	BASF			
37	LVMH			
38	Daimler	No reconcilator		
39	Volkswagen			
40	Xstrata			
41	Bayer			
42	Aztrazeneca			
43	Novo Nordisk			
44	Iberdrola			
45	MMC Norilsk Nickel			
46	Tesco	No reconcilator		
47	Syngenta			
48	Richmond			

Appendix 4: Segmentation identification

Firms	Number	Sector	Criteria
AB Inbev	7	Beverages	Geo
ABB	6	Industrial Ingineering	Businesses
Anglo-American	9	Mining	Businesses
AP Moller Maersk	6	Industrial transportation	Businesses
Aztrazeneca	1	Pharmaceuticals	Businesses
BASF	6	Chemicals	Businesses
Bayer	5	Chemicals	Businesses
BG Group	3	Oil and gas producers	Businesses
BHP Billitton	9	Mining	Businesses
BMW	4	Automobiles	Businesses
BP	4	Oil and gas producers	Businesses
Bristish American Tab	4	Tabacco	Businesses
Daimler	5	Automobiles	Businesses
Deutsche Post DHL	5	Industrial transportation	Businesses
Deutsche Telekom	5	Mobile telecommunications	Mix
E.on	7	Gas, water and utilities	Businesses
EDF	5	Electricity	Businesses
ENI	7	Oil and gas producer	Businesses
Fortum	6	Electricity	Mix
Gazprom	8	Oil and gas producer	Businesses
GDF Suez	7	Gas, water and utilities	Businesses
GSK	2	Pharmaceuticals	Businesses
Hennes and Mauritz	3	General retailers	Geo
Iberdrola	5	Electricity	Mix
Imperial Tabacco	2	Tabacco	Businesses
Inditex	3	General retailers	Businesses
LVMH	4	Personal goods	Businesses
MMC Norilsk Nickel	2	Industrial metals & Mining	Businesses
Nestlé	8	Food producer	Mix
Novartis	5	Pharmaceuticals	Businesses
Novo Nordisk	2	Pharmaceuticals	Businesses
Richemont	4	Personal goods	Businesses
Rio Tinto	6	Mining	Businesses
Roche	3	Pharmaceuticals	Businesses
Rosneft	2	Oil and gas producers	Businesses
SAB Miller	7	Beverages	Geo
Sanofi-aventis	4	Pharmaceuticals	Businesses
SAP	4	Software and Computer Services	Businesses
Shell	3	Oil and gas producers	Businesses
Siemens	5	General Industrials	Businesses
Statoilhydro	5	Oil and gas producers	Businesses
Syngenta	3	Chemicals	Businesses
Telefonica	3	Fixed line telecommunication	Geo
Tesco	5	Food & Drugs retailers	Mix
Thyssen Krupp	8	General Industrials	Mix
Total	4	Oil and gas producers	Businesses
Unilever	3	Food producer	Geo
Vodafone	8	Mobile telecommunications	Geo
Volkswageb	4	Automobiles	Businesses
Xstrata	6	Mining	Businesses

Appendix 5: Indexes of compliance and comparability across communication channels

		Segments	Indicators	Both
1	Shell	1,00	1,00	1,00
2	Nestlé	1,00	1,00	1,00
5	Novartis	1,00	1,00	1,00
6	Total	1,00	1,00	1,00
22	Bristish Americ	1,00	1,00	1,00
25	EDF	1,00	1,00	1,00
26	Daimler	1,00	1,00	1,00
30	Anglo-America	1,00	1,00	1,00
36	SAB Miller	1,00	1,00	1,00
38	BMW	1,00	1,00	1,00
42	Tesco	1,00	1,00	1,00
49	Deutsche Post	1,00	1,00	1,00
31	Deutsche Telel	1,00	0,67	0,83
34	Novo Nordisk	1,00	0,67	0,83
4	Vodafone	0,67	1,00	0,83
32	Bayer	0,67	1,00	0,83
18	Statoil Hydro	1,00	0,33	0,67
23	BASF	1,00	0,33	0,67
24	LVMH	1,00	0,33	0,67
27	SAP	1,00	0,33	0,67
7	BP	0,67	0,67	0,67
8	Roche	0,67	0,67	0,67
9	Siemens	0,67	0,67	0,67
11	Rio Tinto	0,67	0,67	0,67
12	GSK	0,67	0,67	0,67
15	Sanofi-aventis	0,67	0,67	0,67
17	AB Inbev	0,67	0,67	0,67
19	Unilever	0,67	0,67	0,67
20	BHP Billitton	0,67	0,67	0,67
21	BG Group	0,67	0,67	0,67
29	Xstrata	0,67	0,67	0,67
35	E.on	0,67	0,67	0,67
37	ABB	0,67	0,67	0,67
45	Imperial Tabac	0,67	0,67	0,67
47	Richmond	0,67	0,67	0,67
16	GDF Suez	0,67	0,33	0,50
44	AP Moller Mae	0,67	0,33	0,50
13	ENI	0,33	0,67	0,50
48	Fortum	0,33	0,67	0,50
28	Volkswagen	0,00	1,00	0,50
33	Aztrazeneca	0,67	0,00	0,33
10	Telefonica	0,33	0,33	0,33
46	Syngenta	0,33	0,33	0,33
50	Thyssen Krupp	0,33	0,33	0,33
39	Iberdrola	0,00	0,33	0,17
3	Gazprom	0,00	0,00	0,00
14	Rosneft	0,00	0,00	0,00
40	Inditex	0,00	0,00	0,00
41	MMC Norilsk I	0,00	0,00	0,00
43	H&M	0,00	0,00	0,00
	Mean	0,66	0,62	0,64
	Median	0,67	0,67	0,67

Appendix 6: information concerning the change in the segments composition

TELEFONICA: since January 1, 2011, results for TIWS and TNA formerly part of Telefónica Latin America, and consolidated within Telefónica Europe Telefónica North America (TNA), formerly part of Telefónica Latin America, and consolidated within Telefónica Europe since January 1, 2011.

IBERDROLA: In 2011, Iberdrola present segment under three labels: 1) deregulated, 2) renewable, 2) network and 4) other and a particular segment for 5) South America
For the first 3 segment, management uses a geographical decomposition under each label.
In 2010, segments were not the same. There were 1) Spain, 2) Renewable Energy, 3) South America, 4) Mexico-Guatemala, 5) Scottish Power and 6) Iderdrola USA and then structure and adjustments. In 2009, the segments were the same than in 2010.

GSK 'GSK has revised its segmental information disclosures to reflect changes in the internal reporting structures with effect from 1 January 2011. The Pharmaceuticals and Vaccines business in Japan is now shown as a separate segment. Comparative information has been restated on a consistent basis.' (Consolidated Statements, note 6, page 134)

GDF: Following the acquisition of the International Power plc group ("International Power") on February 3, 2011 (see Note 2, "Main changes in Group structure"), the Energy Europe & International business line's activities are now presented under the following segments: Benelux & Germany, Europe and International Power. In 2010, the Group presented the International Energy activities transferred to International Power within the following three operating segments: North America, Latin America and Middle East, Asia & Africa. The Group's assets in the United Kingdom and the gas distribution activities in Turkey transferred to International Power were previously shown within the Europe business area. (Consolidated Statements, note 6, page 54)